



## **Cousteau's Blue Hole • Study Guide**

Tucked away in the forest on Andros Island in the Bahamas is a small circular pond. But this particular pond is actually a Blue Hole, over 400 feet deep. Jonathan explores the depths of this Blue Hole, first explored by legendary ocean explorer Jacques Cousteau, and finds some fascinating biological processes going on way down deep.

### **Objectives**

1. Introduces viewers to the environment of a Blue Hole.
2. Explores the chemistry of bacteria and decomposition.

### **Questions for before watching the program**

1. What is a Blue Hole?
2. What happens to organic matter that falls into a pond?
3. Is there oxygen in water? How does oxygen in water affect marine life?
4. If there were no oxygen in water, how would that affect marine life?
5. Can bacteria live in the absence of oxygen?

### **Discussion for after watching the program**

1. The water near the surface of the Blue Hole isn't blue but green. Why?
2. What is a halocline and how is it formed?
3. Where do the rusty stains on the rocks come from?
4. How is the microbial mat created?
5. What does sulfate-reducing bacteria breathe instead of oxygen? What is the by-product of this respiration?
6. Why are there no fish down deep in the Blue Hole?
7. What are the walls of the Blue Hole made mostly of? What happens to it that causes it to crumble?